
Summary: In this paper, we investigate the uniqueness and distribution of zeros of a class of difference polynomials by using Nevanlinna’s value distribution theory. We obtain results about the uniqueness of the difference polynomials $P(f) \sum_{i=1}^{k} t_i f(z+c_i)$ and the distribution of zeros of the difference polynomials $P(f)(\sum_{i=1}^{k} b_i(z)f(z+c_i)^{s} - h_0(z)$, where $f(z)$ is a transcendental entire function of finite order, $c_i, t_i (i = 1, 2, \cdots, k)$ are non-zero constants, and $b_i(z)(i = 0, 1, \cdots, k)$ are small functions with respect to $f(z)$.

MSC:

30C15 Zeros of polynomials, rational functions, and other analytic functions of one complex variable (e.g., zeros of functions with bounded Dirichlet integral)

30D20 Entire functions of one complex variable (general theory)

30D35 Value distribution of meromorphic functions of one complex variable, Nevanlinna theory

Keywords:

entire function; finite order; difference polynomial; uniqueness; zero

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